

Remarks

This Amendment is responsive to the **August 21, 2008** Office Action. Reexamination and reconsideration of **claims 1-36 and 38-47** is respectfully requested.

Status of Claims

Claims pending for examination: 1-36 and 38-47
Claims previously canceled: 37 and 48-54
Claims added herein: none
Claims currently amended: none
Claims in independent form: 1, 21, 26, 35, 39, 43

Summary of The Office Action

In response to the Appeal Brief filed on December 10, 2008, prosecution has been re-opened and the following rejections were applied:

Claims 1, 3-9, 21, 23-27, 29-36, 38-43 and 47 were rejected under 35 U.S.C. §103(a) as purportedly being unpatentable over Schloeman et al. (US 6,659,581 B2).

Claims 2, 22, and 28 were rejected under 35 U.S.C. §103(a) as purportedly being unpatentable over Schloeman et al, in view of Axtell et al. (US 2002/0060722 A1).

Claims 10-20 and 44-46 were rejected under 35 U.S.C. §103(a) as purportedly being unpatentable over Schloeman et al. in view of Cleland et al. (US 6,491,377 B1).

I. Claims 1, 3-9, 21, 23-27, 29-32, 35, 36, 38-43 and 47 rejected under 35 U.S.C. §103(b) as being obvious over in view of Schloeman et al. (US 6,659,581 B2).

To establish a prima facie case of 35 U.S.C. §103 obviousness, basic criteria must be met. The prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP 2143(A). Section 2131 of the MPEP recites how "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

This same standard applies to §103 rejections as evidenced by Section 2143(A) of the MPEP, which reads: "The rationale to support a conclusion that the claim would have been obvious is that all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions and the combination yielded nothing more than predictable results to one of ordinary skill in the art." Citing *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, 82 USPQ2d 1385, 1395.

I. With No Change in their Respective Functions

The Supreme Court in *KSR* required elements to be combined "with no change in their respective functions." Conversely, the present rejection is based on changing the functions of the components in Schloeman (OA, page 3, 1st paragraph). Here, the OA states that it would have been obvious for elements 110 and 118 to act as address generators. As explained herein, the rationale of the rejection is based on an improper modification, is not taught or suggested, and is not supported by the evidence of record.

In particular, the rejection changes the function of the pulse width generators 110a-110n (which generate pulse width values) to be address generators. The rejection also changes the function of the fire pulse generators 118a-118n (which generate fire signals) to be address generators. The rejection clearly changes the functions of these components. Detailed explanations of the components are provided below. According to KSR and MPEP 2143(A), such a modification is not obvious. Thus the basis of the rejection is improper and a prima facie obviousness rejection has not been established. All rejections should be withdrawn and all claims allowed.

II. The Proposed Modification Cannot Render The Prior Art Unsatisfactory For Its Intended Purpose

MPEP 2143.01, section V, states:

If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)

By changing the pulse width generators 110a-110n to generate addresses instead of pulse width values, the downstream components would not operate correctly. For example, the downstream components would be receiving different signals, unexpected signals, and unrecognizable signals. The circuit would thus fail. Therefore the proposed modification renders Schloeman unsatisfactory for its intended purpose.

The circuit would also fail by changing the function of the fire pulse generators 118a-118n to generate addresses instead of fire signals. The downstream components would fail to operate. Thus the proposed modification renders Schloeman unsatisfactory for its intended purpose. For this additional reason, the rejection is improper.

III. The Proposed Modification Cannot Change The Principle Of Operation Of A Reference

(MPEP 2143.01, section VI, states:

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)

As explained above, by changing the function of the components, different signals would be generated. The downstream components would be receiving unexpected and unrecognizable signals. The circuit would thus fail. Accordingly, the proposed modification changes the principle of operation of the reference (e.g. it changes it from a properly operating circuit to a malfunctioning circuit). Thus the proposed modification is improper and is not obvious.

For this additional reason, the rejection is improper and all claims should now be allowed.

The claims are now addressed in detail.

Independent Claim 1

Claim 1 was rejected under 35 U.S.C. §103 as being obvious over Schloeman. Appellant respectfully submits that Schloeman does not render claim 1 obvious for several reasons. First, the pulse width registers 110a-110n of

Schloeman do not teach the address generators of claim 1 and cannot act as address generators. Second, the fire pulse generators of Schloeman do not teach the address generators of claim 1. Third, the fire_pulse_1-n signals of Schoelman do not teach the address signals of claim 1 and cannot act as address generators. Fourth, the fire pulse generators of Schloeman cannot teach both the drop generators and the address generators of claim 1 as proposed by the Office Action. Fifth, the claim as a whole in the claimed arrangement is not found in Schloeman. And lastly, it is not obvious to change the functions of the pulse width generators 110a-110n or the fire pulse generators 118a-118n to be address generators.

In sum, the rejection is based on the interpretation that the pulse width registers 110a and first pulse generator 118a can be simply changed to be address generators (OA, page 3, 1st paragraph). Figure 4 of Schloeman clearly shows that addresses are provided on an address bus 114. The address bus 114 is connected to each of the pulse width registers 110a-110n as input lines (col. 8, lines 15-17). Thus addresses are generated before they reach the pulse width registers. It makes no sense and it is not obvious to change the function of the pulse width registers to generate addresses when they receive addressed and generate different signals. The rejections are improper for a number of reasons as provided as follows:

A. The Pulse Width Registers of Schloeman Do Not Teach The Address Generators of Claim 1

Claim 1, lines 6-8 recite "a first address generator configured to provide first address signals; a second address generator configured to provide second address signals." The Office Action states, on page 2 that the first and second address generators of claim 1 are taught by elements 110a-110n and 118a-118n of Schloeman (fig. 4).

Elements 110a-110n are pulse width registers. Each register stores a pulse width value that controls the width of a fire pulse. The pulse width registers do not generate addresses. The pulse width value is not an address. Schloeman describes the registers as follows:

Pulse width registers 110a-110n store pulse width values which are employed to determine the widths of the fire pulses provided from fire pulse generator circuitry 100. Pulse width registers 110a-110n respectively provide pulse counts 1, 2, . . . , N on busses 116a, 116b, . . . , 116n, which represent the corresponding pulse width values stored in pulse width registers 110a-110n. Each pulse width register 110a-110n stores an appropriate number of bits in the pulse width value to properly encode the desired width of the corresponding fire pulse from fire pulse generator circuitry 100.

(Schloeman, col. 8, lines 18-28)

Thus, the output from a pulse width register 110a is a pulse width value. The output is provided as “pulse count 1” on bus 116a (see fig. 4). The pulse count determines “the widths of the fire pulses” (col. 8, lines 18-20). Therefore the pulse count is not an address (see fig. 4). The pulse count is a value to control the desired width of a fire pulse. One of ordinary skill in the art understands that a pulse counts that determines the width of a fire pulse is not an address. Neither the pulse count register nor the pulse count value teaches the address generators of claim 1.

It is clear from Schloeman figure 4 that addresses are provided on an address bus 114. The address bus 114 is inputted to each of the pulse width registers 110a-110n (col. 8, lines 15-17). Thus addresses are generated before they reach the pulse width registers. Schloeman clearly discloses that the pulse width registers output a pulse count value, not an address (col. 8, lines 18-28). Schloeman thus fails to teach or suggest the claim for at least this reason and fails to establish a prima facie obviousness rejection.

B. The Fire Pulse Generators of Schloeman Do Not Teach The Address Generators of Claim 1

The fire pulse generators generate fire signals. The fire pulse generators do not generate addresses and cannot be changed to generate addresses. Schloeman describes the fire pulse generator as follows:

Fire pulse generator circuitry 100 includes N fire pulse generators 118a, 118b, ... , 118n corresponding to pulse width registers 110a-110n respectively. Fire pulse generators 118a-118n all receive the begin_pulse signal on line 108 from start_fire detection circuit 102 and the clock signal on line 106. In addition, fire pulse generators 118a-118n receive the pulse counts 1-N on busses 116a-116n respectively. Fire pulse generators 118a-118n respectively provide the fire signals fire_pulse_1, fire_pulse_2, ... , fire_pulse_N respectively on lines 120a, 120b, ... , 120n.

(Schloeman, col. 8, lines 30-39)

Thus, the output from a fire pulse generator 118a is a fire signal. The fire signal is used to control the ejection of ink drops from the nozzles of a print head from a “start signal” to a “stop signal” (Schloeman, col. 9, lines 18-23). Because the fire pulse generator generates a fire signal for a time period (from start to stop), it is not an address. Therefore, the fire pulse generators are not address generators. They also cannot be changed to generate addresses because the downstream components would not recognize the new signals.

The pulse width registers 110a-110n and the fire pulse generators 118a-118n are not address generators and cannot act as address generators. They do not alone or in combination teach or suggest the first and second address generators recited in claim 1.

C. The Fire Pulse 1-n Signals of Schoelman Do Not Teach The Address Signals of Claim 1

The Office Action states on page 2 that the fire_pulse_1-n signals teach the address signals recited in claim 1. As seen in figure 4 of Schoelman, "Address Bus 114" is input to the pulse width registers. "Pulse width registers 110a-110n receive data on data_bus 112 and addresses from address_bus 114." (col. 8, lines 15-17). Therefore, the pulse width registers do not generate addresses and do not provide addresses. Instead, they receive addresses and then generate fire_pulse signals, which are not addresses. Accordingly, the fire_pulse_1-n signals do not teach the addresses recited in claim 1 and Schloeman fails to teach the claim for this additional reason.

D. The Fire Pulse Generators of Schloeman Cannot Teach Both The Drop Generators and The Address Generators of Claim 1

The Office Action asserts on page 2 that fire pulse generators teach the drop generators recited in claim 1 by citing Schloeman, column 2, lines 32-41 and figure 4. This citation refers to the same fire pulse generators discussed above that the Office Action attempted to use to teach the address generators. In claim 1 the drop generator responds to an energy signal to eject fluid and the address generators provide address signals. These claim elements are different elements and perform different operations. Therefore, the same component (fire pulse generator) can not and does not teach both the drop generators and the address generators of claim 1.

Neither the pulse count register nor the pulse count value is an address generator as recited in claim 1. The fire_pulse_1-n signals are not the addresses recited in claim 1. As such, Schloeman fails to teach or suggest each and every element of claim 1 and fails to establish a prima facie obviousness rejection. The rejection is improper and should be withdrawn. Claim 1 should now be allowed.

Accordingly, dependent claims 2-20 are also not taught or suggested by the reference. The rejection is improper and should be withdrawn. All claims should now be allowed.

Independent Claim 21

The Office Action cites Schloeman figure 4 and the combination of elements 110a/118a and 110n/118n as teaching the recited means for generating first address signals and means for generating second address signals (OA, page 5). Based on the explanation of Schloeman under claim 1, elements 110a-110n and 118a-118n do not teach address generators and cannot be modified to act as address generators. Instead, these components generate the fire_pulse_1-n signals. As explained above, the fire pulse generator 118a generates a fire signal from a start time to a stop time (Schloeman, col. 9, lines 18-23). Therefore it is not an address and cannot be changed to an address since the downstream components would fail to recognize the signals.

Each and every element of claim 21 is not found in Schloeman. Furthermore, the claim as a whole, recited in the claimed arrangement and with the claimed connections, is not found and is not obvious. The rejection should be withdrawn and claim 21 allowed.

Independent Claim 26 and 43

Similarly, the Office Action cites elements 110a/110n and 118a/118n as well as the fire_pulse_1-n signals as teaching the claimed elements relating to generating first and second address signals (final Office Action, page 6). Elements 110-110n and 118a-118n do not teach or suggest generating addresses and the fire_pulse_1-n signals are not addresses. Furthermore since elements 110-110n receive addresses as input on address bus 114, they do not generate addresses

(see fig. 4). Thus, Schloeman does not render either claim obvious. The rejections should be withdrawn.

Claim 43 recites: “generating first address signals at a first source” and “generating second address signals at a second source different than the first source”. In view of the discussion of Schloeman, Schloeman only discloses one address bus 114 that carries addresses (fig. 4). It fails to disclose what component generates the addresses. Therefore, Schloeman fails to teach or suggest different sources that generate first and second address signals. Claim 43 is not obvious and the rejection should be withdrawn. All claims should be allowed.

Independent Claim 35 and 39

Claims 35 and 39 recite a first source of address signals and a second source of address signals. The pulse width registers 110a-110n, fire pulse generators 118a-118n and the fire_pulse_1-n signals were cited to teach the claimed elements (final Office Action, page 10-11). As shown above, they do not. A prima facie rejection has not been established. The rejections should be withdrawn and all claims allowed.

Claim 39 further recites “first resistors electrically coupled to the first address lines” and “second resistors electrically coupled to the second address lines”. Schloeman figure 4 was cited as teaching these elements (final Office Action, page 11). In figure 4, the fire pulse lines 120 control ejection of ink drops from nozzles of the printhead 40 (col. 9, lines 20-23). Thus it can be assumed that resistors for ejecting drops are somewhere connected to the fire lines 120a-n. As previously explained, the fire lines 120 are not address lines. Schloeman explicitly shows that the address bus 114, which carries addresses, is connected to each of the pulse width registers 110a-110n. The address bus then ends at the pulse width registers. The address bus is not coupled to resistors. Therefore, figure 4 fails to teach or

suggest the claimed elements or the claimed arrangement of “first resistors electrically coupled to the first address lines” or “second resistors electrically coupled to the second address lines”. A prima facie rejection has not been established. The rejection is improper and should be withdrawn.

II. Whether claims 33 and 34 are unpatentable under 35 U.S.C. 103(a) as being obvious over Schloeman et al.

Claims 33 and 34 depend from independent claim 26. It has been shown that Schloeman fails to support the rejection for which it is relied upon as applied to the independent claims. Thus Schloeman fails to establish a prima facie obviousness rejection for the dependent claims. The §103 rejection is improper and all claims should be allowed.

III. Whether claims 2, 22, and 28 are unpatentable under 35 U.S.C. 103(a) as being obvious over Schloeman et al, in view of Axtell et al. (US 2002/0060722 A1).

Claim 2 depends from independent claim 1. Claim 22 depends from independent claim 21. Claim 28 depends from independent claim 26. It has been shown that Schloeman fails to support the rejection for which it is relied upon as applied to the independent claims. Thus Schloeman fails to establish a prima facie obviousness rejection for the dependent claims. Since Axtell was cited for other purposes, Axtell fails to cure the deficiencies of Schloeman as explained above. The §103 rejection is improper and all claims should be allowed.

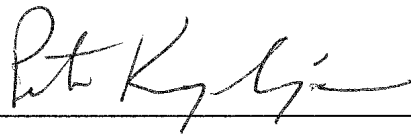
IV. Whether claims 10-20 and 44-46 are unpatentable under 35 U.S.C. 103(a) as being obvious over Schloeman et al. in view of Cleland et al. (US 6,491,377 B1).

Claims 10-20 depend from independent claim 1. Claims 44-46 depend from independent claim 43. It has been shown that Schloeman fails to support the rejection for which it is relied upon as applied to the independent claims. Thus Schloeman fails to establish a prima facie obviousness rejection for the dependent claims. Since Cleland was cited for other purposes, Cleland fails to cure the deficiencies of Schloeman as explained above. The §103 rejection is improper and all claims should be allowed.

Conclusion

For the reasons set forth above, claims 1-36 and 38-47 patentably and unobviously distinguish over the references and are allowable. An early allowance of all claims is earnestly solicited.

Respectfully submitted,



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